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DEPARTMENT OF AGRICULTURE

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FRUIT DIVISION

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EXPORT APPLE TRADE

BY

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To the Honourable

The Minister of Agriculture.

SIR,—I beg to transmit herewith the bulletin on 'Export Apple Trade,' by Mr. W. A. MacKinnon, Chief of the Fruit Division; and to recommend that it be printed for distribution.

I have the honour to be, sir,

Your obedient servant,

JAS. W. ROBERTSON,

Commissioner of Agriculture and Dairying.

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EXPORT APPLE TRADE.

INTRODUCTION.

It is not the object of the present bulletin to discuss conflicting theories in matters of detail, much less to suggest innovations or advocate radical changes in the apple trade as now established; but rather to collect and publish in convenient form for easy reference, the generally accepted principles which form the broad basis for success in the growing and exporting of Canadian apples for European markets.

It should be borne in mind, however, that even general principles admit of many variations in so vast a country as ours; and where a process or method is recommended in these pages, it is by no means intended to condemn all other methods, but only to suggest what may safely be adopted as the normal one, subject to such alterations as local conditions may demand.

The subject divides itself naturally into two parts: **A** The production of apples for export, which is the business of the growers; and **B** The distribution of the product, which is the business of packers and shippers.

A.—PRODUCTION.

1.—Varieties to Plant.

The first question to be considered by the intending grower is, what varieties of apples he should plant. Before deciding, he must consider intelligently:—

a. What varieties promise the best returns in the foreign market which he means to supply.

b. Which of these will succeed best under the local conditions on his own farm.

a.—Standard Varieties.

The grower will find that a few varieties which we may call 'standard' or 'preferred' are always wanted, and that the demand for them is practically unlimited; and that many other varieties are accepted, sometimes at good prices, but only when required for a special trade, or at a time when there is a shortage in 'standards'.

Of course it is essential to consider not only the present demand and prices, but those of the future, which may be affected by change in popular taste, or by increased competition of choice but tender varieties, as transportation facilities are improved.

The average grower, who cannot afford to experiment, will confine his planting to the varieties which the above considerations lead him to class as 'standard'. As an aid to him, the following facts may prove useful:—

(1). Six apple exporters, representing firms which operate in all parts of Canada, were asked separately to name the best paying varieties of apples, taking one year with another, from the exporter's point of view.

Of the six exporters, all named the Baldwin,
all " Greening,
five " Spy,
four " Golden Russet,
four " King,
four " Ben Davis,
four " Canada Red,
three " Mann,
two " Cooper's Market,
one " Hubbardston.

In other words, the diversified experience of these men led them to recommend only ten varieties in all, of which three—Baldwin, Greening and Spy—found approval with more than two-thirds of them; and only eight varieties in all were named by half of the shippers.

(2) Three Nova Scotia growers gave precedence to the following nine varieties:

* Nonpareil,
Baldwin,
King,
Spy,
Golden Russet,
Greening,
* Blenheim,
* Gravenstein,
Ben Davis.

(3) A sub-committee of fruit growers, called to meet with the Fairs Association, and prepare a model prize list for township and county fall fairs in Ontario, submitted the following preliminary list:

APPLES.

Class I. Commercial Varieties.

For Southern Sections.

Baldwin,
Ben Davis,
* Blenheim,
* Cranberry,
* Duchess,
Greening,
* Gravenstein,
Hubbardston,
King,
Ontario,
Spy,
* Wealthy.

The following list of twelve varieties recommended for the Annapolis Valley, is taken from "The Homestead" of March 15, 1902, the order being that of ripening:

* Gravenstein,
* Ribston,
* Blenheim,
King,
Greening,
Spy,
Baldwin,
Golden Russet,
* Stark,
* Fallawater,
Ben Davis,
* Nonpareil.

It is a noteworthy fact that the first six varieties in the exporters' list, namely, *Baldwin, Ben Davis, Greening, Russet, Spy* and *King*, appear in each of the above lists. This would seem to indicate that certain varieties succeed well in most sections, but should not lead growers to neglect strictly local conditions.

* Not in Exporters' list given above.

b.—Local Conditions.

If the orchard is to contain but few varieties it is the more necessary that these few should be the *very best* for the purpose intended; and it must be remembered that we are now dealing with the *export trade*. It is not enough that a certain variety is *good*; we must enquire, is it the *best*, or one of the three or four best, for the export trade and for this particular farm? The grower ought to plant those only which are best suited to the soil, location and general conditions of the proposed orchard. The advice of experienced local orchardists should be obtained, and Ontario and Quebec growers should not fail to consult the lists given for the various districts in Mr. Macoun's pamphlet * 'Apple Culture,' pp. 33-37.

Having obtained a reliable list of 'standards' from which to select, the grower must now consider the established fact that large lots of uniform merchandise command higher prices than small or mixed lots; it will therefore be to his advantage to plant as many trees of each variety selected, as his ground will allow without crowding. Even if he desires with a small orchard, to 'cover the season,' three or four varieties should be sufficient. A very successful Annapolis grower recommends for this purpose only three, for Nova Scotia:—

Gravenstein.
Baldwin.
Nonpareil.

Buying New Stock.

In purchasing trees, the grower should deal only with the most reliable firms, or with agents whom he knows personally, and whom he can hold responsible should the trees not prove true to name. He should moreover, resist all inducements to plant new and untried varieties, for which the agent claims exceptional virtues. As before stated, the average grower cannot afford to experiment, but should await the verdict of the Government stations.

Top-grafting.

If the varieties already planted are unprofitable, from any cause, the grower should replace the undesirable trees, or alter them by top-grafting to standard sorts as described in 'Apple Culture', p. 20.

2.—Care of the Orchard.

If the apple trees are to yield their owner a good return, he must invest something more than their original cost; he must make some annual outlay in feeding, training and protecting them. In other words, he must cultivate, prune and spray.

A.—Cultivation and Cover Crops.

Orchards require cultivation. This is so nearly a universal rule, that the exceptions need not be discussed here.

The main object of cultivation is the conservation of moisture: by keeping on the surface a dust mulch of about three inches in depth, evaporation is checked, and thus moisture is retained for use of the trees. Moreover, it has been shown that frequent stirring to this depth, secures for the trees the greatest quantity of available plant food, by allowing free circulation of air through the soil. Deep plowing destroys many of the fine rootlets which grow near the surface, besides reducing the amount of plant food available.

* Bulletin No. 37, Central Experimental Farm, Ottawa, which will be sent free to all applying for it.

Tillage should begin with an early spring plowing, if necessary to turn under a cover crop, followed by frequent cultivation, especially after rain, till early or mid July, after which the new growth should be allowed to ripen. Any implement may be used that will thoroughly stir the soil to a depth of three inches.

A cover crop should then be sown, and cultivation abandoned during the season of wood ripening. Red Clover, Crimson Clover, or Hairy Vetch will enrich the soil with nitrogen, besides forming a thick mat of vegetation before winter sets in, and thus affording protection against the frost. Buckwheat, rye and oats are also used as cover crops, adding humus to the soil and protecting the roots during winter.

Cover crops should be plowed under as early as possible in the spring, unless there is plenty of moisture in the soil to carry the trees safely through a time of drought. If left growing they draw off large quantities of moisture.

This subject is dealt with fully by Mr. Macoun in "Apple Culture" pp. 57–60.

b. Pruning.*

Pruning is in part an adjunct of cultivation, since it is by proper pruning that we secure trees such as can be cultivated to advantage. The question of high or low heads will not be discussed here, but it should be pointed out that with the use of extension tools, cultivation can be carried very close to low headed trees.

Having secured the proper height of trees, pruning should be limited to what is necessary for the free admission of light and air to the entire top. Light and air should be distributed without waste of space involved by the formation of hollow cup-shaped heads. The centre of the tree should be left fairly well filled, but not crowded. If a branch is rubbing another or interfering with its light, the inferior branch should be cut out. Pruning should be done as far as possible when the tree is young or when the twigs are small, though it is better to cut out a large branch than to leave it, if it is injuring the tree, and every tree requires annual attention.

Special attention should be paid to fruit spurs. These should not be removed from the lower branches, but the aim of the grower should be to distribute the fruit spurs, and therefore the fruit, over the entire working surface of the trees. The whole tree should be made a source of revenue to the grower, but without, however, allowing it to over-bear. Pruning may be done in May or June, if time can be found for this operation, but it is commonly done in the mild weather of early spring.

c.—Spraying.

This operation has in recent years come to be held absolutely essential to successful apple growing. While it is sometimes the case in a favourable season that unsprayed fruit is free from scab and spot, yet there is no security except in careful and thorough spraying. The most useful formula for the prevention of scab is that known as the Bordeaux mixture, a standard composition of which is as follows: water, 40 gallons; copper sulphate (bluestone), 4 pounds; fresh lime, 4 pounds. It is a common practice now to use five or six pounds of lime, and in wet seasons such as that of 1902, it has been found that those growers are most successful who use the excess of lime, which causes the mixture to adhere better to leaves and fruit.

For late sprayings the ammoniacal carbonate solution† is recommended instead of Bordeaux as it does not spot the fruit.

Sucking insects such as aphis are destroyed by kerosene emulsion. To destroy eating insect pests such as the codling moth and canker worm, Paris green should be added to the Bordeaux mixture: 4 ounces to the barrel is the usual quantity, but as commercial Paris green is often impure, it is wiser to use an ounce or two extra

* See 'Apple Culture,' page 49.

† Copper carbonate, 5 ounces; concentrated ammonia, 2 quarts; water, 40 gallons; dissolve the carbonate in the ammonia and add to the water

of this poison. Various other compounds are also used, but the careful application of Bordeaux mixture with Paris green added will achieve most satisfactory results. The lime and copper sulphate should be dissolved separately and freely diluted with water before being mixed in the spray barrel. If they are mixed while in strong or concentrated solutions the result is that they settle to the bottom, and it is almost impossible to keep the contents of the barrel so agitated as to get the proper mixture upon the trees.

It is essential that the spray should be applied in the finest possible form, like a mist, in order that it may reach every part of every twig and leaf and apple. Otherwise, any uncovered part is liable to the attack of the scab. In order to secure the fine mist careful straining of the solution is first requisite, and then a strong and even pressure on the pump. It has been found that a gasoline or steam engine is the best means of securing a uniform high pressure.

Time to Spray.

The trees should be sprayed just before the buds burst, then just before the blossoms open, immediately after they fall, and ten days later. These four sprayings will, under ordinary circumstances, insure that the crop is clean and free from scab or other disfigurement, though the codling moth must also be fought by means of bands placed about the trees during the early summer. In unusually wet seasons five or six sprayings should be given, for it sometimes happens that the scab develops late in the summer.

The operation of spraying pays many times over. Even if it cost five cents a tree for each spraying, and if five sprayings were given, the total cost of twenty five cents would be more than made up if the tree bore only a single barrel. The difference between spotted and unspotted fruit is usually the difference between No. 1 and No. 2 apples, which often amounts to a dollar a barrel in the British market.

The Department is testing this year the advantages of power spraying, and it is fairly well established that wherever a single grower or group of farmers have two or three thousand trees, the spraying can be most economically done, as it certainly can be most efficiently done, by use of a power outfit. Either steam, gasoline or compressed air may be selected as the motive power; all of these are being employed in different parts of Canada at the present time.

B. DISTRIBUTION.

1. Selling the Crop.

When the grower is not also an exporter he may sell the apples in one of two ways, either at so much per barrel or at a lump sum for the entire orchard. As buyers often make their contracts long before picking time, either method involves consideration of the probable market price during fall and winter, which will be regulated by the total supply and demand, influenced too by changes in the quality of the crop. When to this uncertainty we add the difficulty of estimating months in advance the total yield of an orchard, subject to all the changes of weather, to drought, hail, and wind storms, the unbusiness-like character of bargaining 'by the lump' is apparent. Whichever party gains an undue advantage, the trade suffers from this as from any other kind of gambling. The system was strongly condemned by the National Apple Shippers' Association and our Canadian buyers describe it as an unmixed evil. Surely no more need be said to induce both buyers and sellers to abandon such guesswork, and to buy and sell by fixed standards of measure.

2. Picking.

All apples should be carefully picked by hand, with the stems on and without breaking the skin or bruising the fruit in any way.

As a general rule it is advisable for growers to harvest and pack their own fruit, whether they eventually sell it on the premises or ship to foreign markets. In either case it is a great advantage to the seller to know exactly the quality and variety of the fruit in every package. It is a still greater advantage to have each variety picked at just the proper time. No wholesale buyer is able to have his men arrive at each orchard just when the apples in it are ready. The result is that every season a great many orchards throughout Canada are picked either too early or too late. Fruit picked too early may keep but is apt to become tough and tasteless; if picked too late it will not keep, as the process of decay has already begun.

a.—Time to Pick.

Tender varieties should not be allowed to ripen on the trees or they will not carry well. Certain others, sometimes styled 'winter varieties,' such as the Baldwin and Spy, will gain in colour and flavour if left on the trees as long as the frost will allow, besides being less liable to spot and mould during storage. It will pay the farmer well to pick his own fruit and see that this first step in marketing entails no needless waste.

Moreover, all varieties of apples are not ready for picking at the same time, even if destined for the same market; and some early varieties should have more than one picking to get all the fruit at the proper stage of maturity. Only the grower is in a position to watch his orchard and harvest the crop to the best advantage, and it is the grower who loses when he entrusts this task to another, for buyers are certain to allow for shrinkage from this cause. Another loss to the grower arises from carelessness of hired help, who often seriously injure trees by breaking limbs and fruit spurs.

b.—Removal of 'Drops'.

Before any fruit is taken from the trees, every apple, good, bad and indifferent, should be cleared off the ground and carried away, to be used for feeding stock, or for any other purpose for which they may be fit, but *not* for export. Similarly, apples which drop during the picking process should be kept by themselves. We must give the fruit a fair chance from the start; wormy, rotten or otherwise diseased apples spread contagion, and bruised or defective fruit will not pay for labour, heavy freight charges and commission.

c. Ladders and Baskets.

Step ladders may be used for getting at the lower limbs, and long point-top ladders for the upper branches; the baskets should be small enough to turn easily inside a barrel, and so shaped as to allow the apples to be turned out with a gentle, sliding motion. In picking, care should be taken to avoid breaking off the fruit spurs, which contain the promise of next year's crop.

3. Grading.

Grading always pays, whether the crop be light or heavy. When the wormy, bruised, mis-shapen and spotted apples have been removed, the following qualities should be apparent in the higher grades:—

(1.) Uniformity in size.
(2.) Uniformity in colour.
(3.) Freedom from defects.

Two grades will usually be found sufficient for export, and both of these should be practically free from insect or other injuries, the second being inferior to the first only in point of size and colour. All the apples in one grade cannot be uniform in size, but the apples in a single package should be so, for the fruit will be viewed and sold by the package.

It may well happen that a third grade, exclusive of culls, will be found to consist of fair marketable fruit, which the grower feels disposed to export; but this grade, lacking any special features of excellence and showing a greater percentage of waste, often eats into the profit earned by the finer fruit, besides reducing the general reputation of the shipper's brand. Much better average results are likely to be obtained in local markets or from evaporators.

The merits of mechanical graders placed on the market from time to time, should be carefully investigated by all whose shipments are large. A really good and rapid grader will effect a great saving in time and money, and produce a wonderful difference in the appearance of the fruit when each size is placed in packages by itself.

The expert women who grade French fruit for market perform the operation without mechanical aid. A few days' practice with measuring-rings is sufficient to train the eye so that fruit is accurately graded within a quarter of an inch. Many who are attempting to grade by hand will find that the use of a piece of shingle or other light wood, in which holes are cut measuring 2¼, 2½, 2¾, 3 and 3½ inches respectively will be of great assistance in this work. By testing an apple now and again the packer will soon become expert in determining the size without the use of the testing board.

4.—Packing.

The packing house need not be an expensive affair, but it should be a tightly roofed building, cool and shaded. The barrels or other packages must be fresh and clean, strong and well nailed.

When properly stencilled, as required by law,* and well nailed, the barrels should be set face down on a solid ten-inch plank. A pulp or paper circle should be inserted, on which to place the first layer, consisting of apples of uniform size and colour, with stems clipped close to avoid injury in pressing, and with the stem-end down. When two layers are carefully placed in tight fitting circles, apples similar to those in the 'faced surface' may be poured in gently from baskets, the barrel being frequently jarred meanwhile, until it is nearly full. A heavy felt-lined head is commonly used at this stage, either with or without a press, when 'racking' (or rocking) the barrel, so as to get all the apples well settled into their places, and secure a level surface for 'tailing off' This process consists in arranging the last layers by hand, so that the level top will project slightly above the staves. Opinions differ as to the proper height of this projection, but it should be varied according to the elasticity and tenderness of the variety in question. Many shippers hold that the Spy, being easily bruised, should not project more than half to three-quarters of an inch, if the barrel is well 'racked.' Professor L. H. Bailey, of Cornell University, quotes from a report to the New York State Commissioner of Agriculture as follows: †

'Apples somewhat soft in texture, like Greening, may be pressed down a full inch in barreling, but hard apples should not be squeezed so much.

Over-pressure results in bruising, decay, wet and 'slackness,' and a cut of two shillings or more in the selling price. Under-pressure is equally to be avoided, but a little experimenting, with careful observation, will soon enable the packer to use the proper degree of pressure. Frequent jarring of the barrel makes severe pressure unnecessary.

The fact should never be lost sight of that all incidental expenses (except commission) are as great for a barrel of poor apples as for a barrel of the highest quality. Professor Bailey very properly gives the following advice: –

'The greatest care should be taken in the packing of apples for export, because they are subjected to long and trying transportation, the freight and incidental rates are high, and only the very best fruit will pay transportation and other expenses. One reason why the foreign market has recently been so poor for American apples is because a great amount of poorly-sorted and poorly-packed fruit has been exported.' ‡

*See Appendix, 'The Fruit Marks Act, 1901.'
†'Principles of Fruit Growing,' p. 410
‡'Principles of Fruit Growing,' p. 409.

5.—The Package.

a.—The Barrel.

The standard Canadian barrel is thus defined in the Dominion Statute entitled 'Staple Commodities,' 1 Edward VII, Chap. 26, sec. 4:

'4. All apples packed in Canada for export for sale by the barrel in closed barrels, shall be packed in good and strong barrels of seasoned wood, having dimensions of not less than the following, namely:—twenty-six inches and one fourth between the heads, inside measure, and a head diameter of seventeen inches, and a middle diameter of eighteen inches and one half, representing as nearly as possible ninety six quarts.'

The barrel has been found to be the best package for the all-round apple trade with Great Britain. Only fancy fruit can profitably be put up in smaller packages. The barrel should be well made, strongly nailed and should have eight hoops, two each at top and bottom, with four quarter hoops. The object of this is to ensure that the package shall carry tight for the whole journey. The use of eight hoops instead of six prevents the barrel going slack in case one of the quarter hoops is broken, as not infrequently happens.

The leaders of the British trade express a desire that a uniform barrel be adopted throughout Canada. The barrel most commonly used in Ontario is larger than that required by law.

b.—The Box.

For fancy apples only, of all the leading varieties, a box holding about forty pounds net of fruit is much in demand by the highest class of the retail trade in Great Britain. Three such boxes cost about the same as a barrel. The boxes should be made of strong material not less than five-eighths of an inch thick for the ends, and not less than three eighths of an inch for the sides; the tops should have strips across the ends to prevent the weight of other packages, piled on top, from bearing directly on the fruit. It is also usual to leave open corners at the top and bottom for ventilation. Little or no packing material should be used, as purchasers like to find the package quite full of fruit. A sheet of cardboard at the top and bottom will materially reduce the amount of injury from bruises. If specially selected fruits are packed in such a box in layers they will undoubtedly find a ready and increasing sale; but the reputation of the Canadian box and of the Canadian trade in general will greatly suffer if inferior or common fruit is exported in the box or any fancy package.

c.—The Compartment Case.

A type of box fitted with pasteboard fillers, similar to those used in egg cases, has been recently placed upon the market. This package is more expensive than the box and, therefore, should be used only for the highest class of fancy fruit, such as will repay the cost. Care should be taken that the fruit either fits the compartments exactly or is protected by wrapping or in some other way from rattling about, which would result in bruises.

d. Wrapping.

It will pay to wrap highly coloured fancy fruit such as Fameuse, McIntosh Red King and Wealthy. Any fruit will carry better and open fresher for being wrapped but unless it is of a very fancy grade it will not bring enough additional to cover the extra expense.

e.—Marking.

The object of marking a package should be

a. To advertise clearly and distinctly the source of the fruit, so that further supplies may be ordered readily and with certainty.

b. To indicate in the plainest possible manner to purchasers the variety and grade of the fruit which is offered.

It is, therefore, recommended that stencils or rubber stamps be used for placing all marks upon packages for export, unless such marks are already printed on the package as it comes from the manufacturer. Crayon or lead pencil should never be used for shipping marks, as such marks are indistinct and liable to be rubbed out. Many good looking brands are entirely spoiled by awkward pencil marks, used to indicate the variety or the grade. The additional cost of small stencils for variety and grade is so small that it should not be counted, when it is considered how much more attractive a neatly marked package is than one which has been carelessly marked.

The Fruit Marks Act, 1901, requires every closed package to be marked as above. In addition, owners would do well to give each packer a number, which will appear on every package put up by him, thus serving to identify his work. See Appendix V.

6.—Handling.

Apples should be taken to shelter immediately after picking, and should in no case be left in heaps on the ground, exposed to sun or rain. Barrels of fruit should be hauled only in spring wagons and on their sides.

Early apples especially, which are likely to be picked in warm weather, must be chilled at once, and, decayed or injured samples having been removed, only cool, sound fruit, in cool packages, should be exported, if good returns are expected.

Reports from Great Britain show that shipment after shipment of early apples turns out heated, overripe or wet; and that the lowest prices are realized because so much of the fruit is unfit for export, and detrimental to the better fruit with which it is mixed. It has many times been asserted that if only half the quantity were carefully selected for shipment, and the rest thrown out, the net returns would be larger.

A movement which is on foot in various parts of Canada, to form associations of growers and have storage and packing houses erected at central points, is worthy of every encouragement. If growers will co-operate in this way to secure proper treatment of their crop, with uniform grading and packing, and shipment by competent and independent workmen, much will have been done to revolutionize the Canadian export trade, and to eliminate losses, particularly in early apples.

Apples in barrels should never be left about a railway station or elsewhere, unprotected from the rain. Barrels which have been in the rain are almost certain to go slack before reaching their destination, even if the fruit is not otherwise injured.

On board ship (or in sheds) the apples should not be piled more than five high; and in the piles the rows should be built up separately by a workman standing on the ground, instead of, as is sometimes done, by completing one entire tier and then walking on and rolling barrels over it to build the next layer. In short, every possible care should be taken with barrels of apples; they should be considered fragile packages containing valuable merchandise.

7.—Shipping.

a.—Cold Storage.

Early varieties should be shipped in cold storage if possible, care being taken with the selection and packing, as only the finest fruit will repay the additional expense of cold storage. If properly insulated, air tight and well iced, the car will maintain or slightly reduce the temperature of the fruit, but to fill a car with warm apples is unfair alike to the shipper and the service.

Cold storage on cars and steamers is intended to provide safe carriage for firm cool fruit; it will not save overripe or bruised fruit from decay, nor is it meant to receive and chill warm packages filled with warm fruit. *The fruit should be thoroughly cool before it is shipped*, or good results cannot be expected, and the fact that this is not done explains many failures attributed to cold storage.

Co-operation will be doubly useful here, for it will provide shippers with cold storage at central packing houses, which private individuals could not secure; and it will enable the organized association to ship in large quantities, and thus to reserve cold storage compartments on the steamers for fruit exclusively, to be maintained at whatever temperature may be stipulated. Independent shippers have to accept what accommodation is offered, and this is frequently space in a compartment which has been prepared and regulated to suit some other commodity. The experience of a shipper of a carload of pears last season, who was offered the choice between ordinary storage and space in a butter compartment at 25 degrees, is perhaps not exceptional. By uniting, shippers may make their cold storage trade worth catering to.

b.—Ventilation.

Shippers should endeavour, either individually or in combination to secure accommodation during the winter months in parts of the steamer which are thoroughly well ventilated by fans. If the fruit is in good order when shipped, and has plenty of air during the voyage, it will almost certainly come out in satisfactory condition. But the process of ripening alone is sufficient to cause heating and injury to the fruit if there is not free circulation of air about the packages.

c.—Protection from Frost.

Care should be taken in the case of shipments after the first of December to ascertain what the weather conditions are likely to be during the journey to the seaboard, and while the fruit is at the port waiting to be loaded. If hard frosts are expected means should be taken to cover the barrels with straw or to heat the car if necessary in order to protect the fruit. Very serious losses may be avoided in this way. A large number of barrels of otherwise marketable apples were sold in London last January for $5, which was less than the cost of the barrels alone. This fruit, had it not been ruined by frost, might have brought eight or ten shillings a barrel.

8. Storage.

Winter fruit should be sorted before being stored, in order to avoid paying storage charges on culls, and to reduce the loss from shrinkage in repacking. Storage apples must not be loose in the barrels, but hard pressing is unnecessary, and injures many apples.

Apples may be kept safely in any building where they will be quite cool and reasonably dry; if the outside air is depended on for cold, the openings should have slides by which more or less air may be admitted, according as the weather is mild or severe, and during cold snaps, means should be taken to protect the fruit nearest such openings.

Uniform temperature is desirable, and artificial cold storage is in this respect very efficient. It has been found that apples will keep longest if held close to freezing point, and the best results appear to be obtained from a steady temperature of 31 degrees, at which point barreled apples will not freeze.

* * * * * *

For further information regarding the British and European markets for Canadian fruit, the reader is referred to the evidence of Mr. W. A. MacKinnon, Chief of the Fruit Division, given before the Select Standing Committee on Agriculture and Colonization, in May, 1903. The Evidence may be had free on application to the Fruit Division, Ottawa.

N B.—No postage is required on letters addressed to the Fruit Division on official business.

APPENDIX.

THE FRUIT MARKS ACT, 1901.

(1 EDWARD VII, CHAP. 27), AS AMENDED IN 1902 (2 EDWARD VII, CHAP. 16).

I.—Text of the Act.

HIS Majesty, by and with the advice and consent of the Senate and House of Commons of Canada, enacts as follows:—

1. This Act may be cited as *The Fruit Marks Act*, 1901. Short title.

2. This Act shall come into operation on the first day of July, nineteen hundred and one. Commencement.

3. In this Act, unless the context otherwise requires,— Interpretation.

(*a*) The expression "closed package" means a box or barrel of which the contents cannot be seen or inspected when such package is closed; "Closed package" defined.

(*b*) The expression "fruit" shall not include wild fruit, nor cranberries whether wild or cultivated. "Fruit"

4. Every person who, by himself or through the agency of another person, packs fruit in a closed package, intended for sale, shall cause the package to be marked in a plain and indelible manner, before it is taken from the premises where it is packed, Marks on packages.

(*a*) with the initials of his Christian names, and his full surname and address; Packer's name and address.

(*b*) with the name of the variety or varieties; and Variety of fruit.

(*c*) with a designation of the grade of fruit, which shall include one of the following six marks: for fruit of the first quality, No. 1, or XXX; for fruit of the second quality, No. 2, or XX; and for fruit of the third quality No. 3, or X; but the said mark may be accompanied by any other designation of grade, provided that designation is not inconsistent with, or marked more conspicuously than, the one of the said six marks which is used on the said package. Grade.

5. No person shall sell, or offer, expose or have in his possession for sale, any fruit packed in a closed package and intended for sale, unless such package is marked as required by the next preceding section. Packages not to be sold unless so marked.

6. No person shall sell, or offer, expose or have in his possession for sale, any fruit packed in a closed package, upon which package is marked any designation which represents such fruit as of No. 1 or XXX, finest, best or extra good quality, unless such fruit consist of well grown specimens of the variety, sound, of nearly uniform size, of good colour for the variety, of normal shape, and not less than ninety per cent free from scab, worm holes, bruises and other defects, and properly packed. False marking of packages.

7. No person shall sell, or offer, expose or have in his possession for sale, any fruit packed in any package in which the faced or shown surface gives false representation of the contents of such package; and it shall be considered a false representation when more than fifteen per cent of such fruit is substantially smaller in size than, or inferior in grade to, or differs in variety from, the faced or shown surface of such package. Fraud in packing.

8. Every person who, by himself or through the agency of another person, violates any of the provisions of this Act shall, for each offence, upon summary conviction, be liable to a fine not exceeding one dollar and not less than twenty-five cents for each package which is packed, sold, offered, exposed or had in possession for sale contrary to the provisions of Penalty for violation of Act.

this Act, together with the costs of prosecution; and in default of payment of such fine and costs, shall be liable to imprisonment, with or without hard labour, for a term not exceeding one month, unless such fine and the costs of enforcing it are sooner paid.

Inspector's duty as to false packing.

9. Whenever any fruit in any package is found to be so packed that the faced or shown surface gives a false representation of the contents of the package, any inspector charged with the enforcement of this Act may mark the words "falsely packed" in a plain and indelible manner on the package.

As to false marks.

2. Whenever any fruit packed in a closed package is found to be falsely marked, the said inspector may efface such false marks and mark the words "falsely marked" in a plain and indelible manner on the package.

Notice to packer.

3. The inspector shall give notice, by letter or telegram, to the packer whose name is marked on the package, before he marks the words "falsely packed" or "falsely marked" on the package.

Tampering with marks.

10. Every person who not being an inspector wilfully alters, effaces or obliterates wholly or partially, or causes to be altered, effaced or obliterated, any marks on any package which has undergone inspection shall incur a penalty of forty dollars.

Who shall be liable.

11. The person on whose behalf any fruit is packed, sold, offered or had in possession for sale, contrary to the provisions of the foregoing sections of this Act, shall be *prima facie* liable for the violation of this Act.

Right to examine packages.

12. Any person charged with the enforcement of this Act may enter upon any premises to make any examination of any packages of fruit suspected of being falsely marked or packed in violation of any of the provisions of this Act, whether such packages are on the premises of the owner, or on other premises, or in the possession of a railway or steamship company; and any person who obstructs or refuses to permit the making of any such examination shall, upon summary conviction, be liable to a penalty not exceeding five hundred dollars and not less than twenty-five dollars, together with the costs of prosecution, and in default of payment of such penalty and costs, shall be liable to imprisonment, with or without hard labour, for a term not exceeding six months, unless the said penalty and costs of enforcing it are sooner paid.

Penalty for obstruction.

Procedure.

13. In any complaint, information or conviction under this Act, the matter complained of may be declared, and shall be held to have arisen, within the meaning of Part LVIII. of *The Criminal Code*, 1892, at the place where the fruit was packed, sold, offered, exposed or had in possession for sale.

1892, c. 29.

Appeal.

14. No appeal shall lie from any conviction under this Act except to a superior, county, circuit or district court, or the court of the sessions of the peace having jurisdiction where the conviction was had; and such appeal shall be brought, notice of appeal in writing given, recognizance entered into, or deposit made within ten days after the date of conviction; and such appeal shall be heard, tried, adjudicated upon and decided, without the [illegible] at such time and place as the court or judge hearing the trial appoints, within thirty days from the date of conviction, unless the said court or judge extends the time for hearing and decision beyond such thirty days; and in all other respects not provided for in this Act the procedure under Part LVIII. of *The Criminal Code*, 1892, shall, so far as applicable, apply.

15. Any pecuniary penalty imposed under this Act shall, when recovered, be payable one half to the informant or complainant, and the other half to His Majesty. Application of penalties.

16. The Governor in Council may make such regulations as he considers necessary in order to secure the efficient enforcement and operation of this Act; and may by such regulations impose penalties not exceeding fifty dollars on any person offending against them; and the regulations so made shall be in force from the date of their publication in the *Canada Gazette* or from such other date as is specified in the proclamation in that behalf; and the violation of any such regulation shall be deemed an offence against this Act and punishable as such. Regulations by Governor in Council.

THE FRUIT MARKS ACT, 1901.

II.—Order in Council of 17th September, 1901.

PRIVY COUNCIL, CANADA.

AT THE GOVERNMENT HOUSE AT OTTAWA,

The 14th day of September, 1901.

PRESENT:

His Excellency the Governor General in Council.

Whereas by section 16 of the Act, 1 Edward VII, Chapter 27, intituled "An Act to provide for the Marking and Inspection of packages containing Fruit for Sale, it is provided as follows:—

"16. The Governor in Council may make such regulations as he considers necessary in order to secure the efficient enforcement and operation of this Act; and may by such regulations impose penalties not exceeding fifty dollars on any person offending against them; and the regulations so made shall be in force from the date of their publication in the *Canada Gazette* or from such other date as is specified in the proclamation in that behalf; and the violation of any such regulation shall be deemed an offence against this Act and punishable as such."

Therefore His Excellency the Governor General in Council is pleased, in virtue of the above cited provisions of the said Act, to make the following regulations, the same to come into force on the date of their publication in the *Canada Gazette*.

1. The Minister of Agriculture may make appointments of inspectors and other persons for the enforcement of the Act.

2. Any inspector charged with the enforcement of the Act may detain, for the time necessary to complete his inspection, any shipment of fruit, in respect of which he has reasonable grounds for believing that the marking of the package, or the packing of the fruit, constitutes a violation of the Act; such fruit shall at all times be at the risk and charges of the owner thereof; and any inspector detaining fruit shall give the owner, where ascertained, notice that such fruit is being detained, in storage or otherwise, as the case may be.

3. The despatch of a prepaid telegram or letter to the packer whose name is marked on the package shall be considered due notice.

4. No person shall for himself or on behalf of any other person, pack any fruit for sale, contrary to the provisions of the Act.

5. Any inspector or other person who violates any of the regulations made under the authority of the Act shall for each offence, on summary conviction, be liable to a fine of not less than five dollars and not exceeding fifty dollars, together with the costs of prosecution.

(Signed) JOHN J. McGEE,
Clerk of the Privy Council.

THE FRUIT MARKS ACT, 1901.

III.—General Instructions.

1. Inspectors will visit orchards and packing houses to give information with regard to the Act. They will keep notes of what they observe during such visits.

2. Inspectors will examine fruit at all points in the district assigned them, whether at shipping stations, packing houses, orchards or elsewhere, as directed and as opportunity offers.

3. The Act does not provide for the inspection of particular lots of fruit at the request of buyers or sellers. When not under specific directions, inspectors will use their discretion as to where they can best employ their time within the district assigned them.

4. Inspectors will avoid anything which would delay unnecessarily the movement of the fruit, or which would interfere with the interests of those concerned in the fruit trade, except in so far as action may be necessary to prevent violation of the Act.

5. Packages which have been inspected are to be closed by the inspector and left in marketable order after examination, unless the owner prefers to take charge of such opened packages.

6. Inspectors will report to the department by telegram regarding any particular shipments which in their judgment should be examined at the port of export or elsewhere.

Explanations for Guidance of Inspectors.

Sec. 3 (*a*). 'Closed Package' applies only to boxes or barrels.

Baskets (even with close covers) will not be considered closed packages to be affected by Sections 4 and 6; the packing of fruit in any package is subject to the provisions of Section 7.

Sec. 4. The words 'plain and indelible manner' are to be taken as including all forms of marking which are plain and not readily rubbed out or removed.

Sec. 6. 'No. 1 or XXX, finest, best or extra good quality.' The following marks also are held by the trade generally to indicate this quality of fruit: 'Choice,' 'Fancy,' 'Selected,' 'Prime.'

'Nearly Uniform' is to be taken as including any size of fruit except that which may be fairly classed as *small for the variety*.

'Bruises.' Only such injuries as produce decay or otherwise materially lessen the value of the fruit for consumption, should be counted as bruises.

'Scab.' Such as causes appreciable waste is to be considered particularly.

'Properly Packed.' 'Slacks' are to be considered as not properly packed if the condition is likely to result in permanent damage during handling or transit.

Sec. 9. 'Notice.' After notice there need be no delay in carrying out the further provisions of the Act.

In case no name appears on packages, proceedings may be taken against the owner where ascertained; otherwise against the party in whose possession the fruit is found.

Sec. 11. In case of sales on commission, the real owner will be first held responsible, but the commission merchant, who, after notice, handles fruit put up contrary to the provisions of the Act, will be proceeded against.

Sec. 12. If objection is made to entry or inspection, the inspector must give written notice of his authority under the Act, to the party objecting, attaching a copy of the Act.

J. A. W. ROBERTSON,
Commissioner of Agriculture and Dairying.

DEPARTMENT OF AGRICULTURE,
Ottawa, June 2, 1902.

THE FRUIT MARKS ACT, 1901.

IV.—Explanatory Notes.

a.—For the Grower.

If the grower sells his fruit on the trees or in piles the Act does not apply to him in any particular.

If he sells his fruit in uncovered barrels or boxes, the Act requires only that the top of each package shall be no better than the fruit throughout the package.

If the grower packs his own fruit he accepts the responsibility of the packing, as described in the following paragraph.

b.—For the Owner.

Section 4 of the Act requires that the person who owns the fruit when it is packed in closed barrels or boxes must mark plainly on each package:—

1. His name and address;
2. The name of the variety of the fruit;
3. The grade of the fruit, whether it is 'No. 1,' 'No. 2' or 'No. 3.'

If he marks the package 'No. 1' (or 'XXX') the fruit must be as described in section 6, practically perfect. On reading this section carefully, it will be seen that the packer should aim to discard every injured or defective fruit, and not to deliberately include the ten per cent of inferior specimens which the law allows. This margin is meant to make the work of grading easier and more rapid than if absolute perfection were exacted in the first grade, as many of the best growers think should be done.

It should be noted that the definition of No. 1 fruit does not vary from year to year; no provision is made for lowering the standard when the quality of the crop is poor. In such a case the only result is that a smaller proportion of the fruit is No. 1.

The Act makes no restriction as to the quality of fruit which is marked 'No. 2' or 'No. 3,' but it is strongly recommended that 'No. 2' consist of fruit in every way as good as 'No. 1' except in the matter of size and colour. 'No. 3' will then include all under-sized or defective specimens which are marketable, culls being left at home.

By carefully following the above method, owners will soon establish a high reputation, particularly if they export very few of the 'No. 3' grade.

On the owner is laid the duty of seeing that the face of each package fairly represents the contents as required by section 7. Over-facing is an offence against the Act which is most severely dealt with by the courts.

c.—For the Packer.

Whether he is putting up his own fruit or that of another person, the packer is required by section 4 of the Order in Council, printed above, to pack the fruit in accordance with the law. In other words, the packer must see that his 'No. 1' fruit is at least 90 per cent perfect, and he must see that the top of each package put up by him gives a fair representation of the contents. If he violates the law in either of these particulars he is liable to the fine specified in section 5 of the Order in Council.

Below is given an apple brand which may serve as a model for intending shippers, meeting the requirements of the Fruit Marks Act. The upper half contains all the permanent marks for a season's operation by one head packer, 'No. 50.' The marks for variety and grade, which have to be changed frequently, may be entirely separate, or made to slide into the large stencil. This brand has been cut to require the least possible amount of stencilling, consistent with perfect clearness.

CANADIAN APPLES

GEORGE JOHNSTON

BRISTOL, ONTARIO.

PACKER 50

GREENING

No. 1.

d.—SUMMARY.

The owner who sees that his 'No. 1' fruit is as nearly as possible perfect of its kind, and that every package shows an honest face, has complied with the most important requirements of the Act. If he adds his name and address and the name of the variety, he is perfectly safe from all danger of prosecution under this Act, and need have no fear of inspection if he markets his own fruit.

The packer who refuses to mark imperfect fruit 'No. 1,' and who refuses to fraudulently face packages put up by him, is equally beyond any danger of prosecution under the Act.

For the protection of all parties concerned, it is advisable that the owner should give to every packer working under him, a mark, letter or number to be placed on each package put up by him, so that the responsibility for any given package may always be traced to the proper person.